This Manual Covers Restraints Built After Serial Numbers:
08EE400001W and up
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INTRODUCTION

Read and understand this manual before attempting to install or operate any DOK-LOK vehicle restraint. For best results, have this product serviced by your authorized Rite-Hite representative. The STR-4200 DOK-LOK vehicle restraint by Rite-Hite is intended to provide a safer workplace for workers in shipping and receiving dock areas. The STR-4200 DOK-LOK vehicle restraint is a hydraulic restraint device that, when properly installed and operated, retains a secure connection between the truck and dock. Signal lights and signs provide instructions to the truck driver and DOK-LOK vehicle restraint operator that a safe condition exists. The DOK-LOK vehicle restraint is operated by pressing push buttons on an inside control panel.

NOTICE TO USER

Your local Rite-Hite representative provides a Planned Maintenance Program (P.M.P.) which can be fitted to your specific operation. Call your local representative or the Rite-Hite at 414-355-2600.

The Rite-Hite products in this manual are covered by one or more of the following U.S. patents: 5,546,623; 5,533,987; 5,582,498; 5,664,930; 5,702,223; 5,762,459 (RE: 37,570); 5,882,167; 6,065,172; 6,070,283; 6,085,375; 6,089,544; 6,092,970; 6,106,212; 6,116,839; 6,190,109; 6,276,016; 6,311,352; 6,318,947; 6,322,310; 6,360,394; 6,368,043; 6,431,819; 6,488,464; 6,499,169; 6,505,713; 6,520,472; 6,524,053; 6,634,049; 6,726,432; 6,773,221; 6,832,403; 6,880,301; 7,032,267; 7,062,814; 7,134,159; 7,213,285; 7,216,391; 7,363,670; 7,380,305; 7,503,089; 7,533,431; 7,546,655; 7,584,517; 7,681,271; 7,823,239; 7,841,823; 7,877,831; 7,914,042; 8,006,811; 8,065,770; 8,141,189; 8,191,194; 8,286,757; 8,287,223; 8,303,235; 8,307,956; 8,443,474; 8,464,384; 8,464,846; 8,465,245 and pending U.S. and foreign patent applications. RITE-HITE®, THINMAN™, SAFE-T-LIP™, HYDRACHEK™, WHEEL-LOK™, DOK-LOK™, DUAL-DOK™, SAFE-T-STRUT™, DOK-COMMANDER™, JUMBO™, HYDRA-RITE™, SAFE-T-GATE™, RITE-VU™, LIGHT COMMUNICATION SYSTEM and SMOOTH TRANSITION DOK SYSTEM™, are trademarks of Rite-Hite®.
SAFETY WARNINGS

LOCKOUT/TAGOUT PROCEDURES

The Occupational Safety and Health Administration requires that, in addition to posting safety warnings and barricading the work area, the power supply has been locked in the OFF position or disconnected. It is mandatory that an approved lockout device is utilized. An example of a lockout device is illustrated. The proper lockout procedure requires that the person responsible for the repairs is the only person who has the ability to remove the lockout device.

In addition to the lockout device, it is also a requirement to tag the power control in a manner that will clearly note that repairs are under way and state who is responsible for the lockout condition. Tagout devices have to be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or become unreadable.

Rite-Hite Corporation does not recommend any particular lockout device, but recommends the utilization of an OSHA approved device (refer to OSHA regulation 1910.147). Rite-Hite Corporation also recommends the review and implementation of an entire safety program for the Control of Hazardous Energy (Lockout/Tagout). These regulations are available through OSHA publication 3120.
SAFETY DEVICES

**DANGER**

Never be under the dock leveler platform or lip without:

- Installing the Safe-T-Strut or other manufacturer approved supporting device.
- Turning off power to the control box.
- Lockout/Tagout power to the leveler, as shown under Safety Warnings on page 3.

**WARNING**

Power Moving Components
Serious Injury Could Occur

**CAUTION**

- Post warnings and barricades at dock level and at drive level to indicate that work is being done around and under the leveler platform.
A DOK-LOK vehicle restraint may be installed on docks with or without levelers. Consult Rite-Hite for proper application.

Follow the six (6) step installation procedure below:

1. Inspect DOK-LOK materials.
2. Anchor or Weld track.
3. Position DOK-LOK assembly into track.
5. Electrical component and sign installation.
6. Test operation.

INSPECT DOK-LOK MATERIALS

Open and inspect all materials. Immediately report any damage or material shortage. Study component assemblies and determine their proper locations.

Install DOK-LOK vehicle restraint onto dock face at 27 inches off of the approach, unless otherwise noted in the “Rite-Hite Installation/Application Guidelines”, at the specified location by welding to an embedded steel plate or by using the concrete anchors provided in conjunction with welding to pit steel and a leveler frame. The track will need to be trimmed if the mounting height is less than 26 inches. A maximum of 1 inch is allowed between the bottom of the track and the approach.

For site specific installation information refer to Rite-Hite Installation/Application Guidelines provided with DOK-LOK vehicle restraint. If the recommended mounting height cannot be achieved call your Rite-Hite Representative or Rite-Hite at (800) 456-0600.

NOTES:

a. Some levelers may be slightly recessed or protruding within pit. A shim must be inserted between the roller track plate and the leveler front subframe and then must be welded in place. See page 13, figure 12.

b. If the dock conditions DO NOT allow lights and signs to be mounted in full view of the forklift and/or truck drivers, consult the factory.

c. If the DOK-LOK is installed with a hydraulic leveler, verify that the leveler’s recycle function has not been adversely affected.

d. Track MUST be centered. Offset track installations ARE NOT allowed. If there is existing anchor hole interference call your Rite-Hite Representative or Rite-Hite Customer Service at (800) 456-0600.

e. Approach must be concrete or there must be a concrete pad where the base plate is installed. See page 12.
## INSTALLATION CONT.

### IMPORTANT

Concrete anchors are provided with each STR-4200 DOK-LOK vehicle restraint. You must install an anchor in each roller track plate hole except those plug-welded to embedded steel.

### ANCHOR TRACK

1. Put DOK-LOK vehicle restraint track in place centered in dock position. Refer to Rite-Hite application guidelines for mounting height.
2. Drill holes of 5/8" diameter and minimum of 4-1/2" deep. Clean out holes.
3. Insert anchor and drive flush with roller track plate, making certain that the threaded wedge is put in first. Do not disassemble anchor prior to installation.
4. Torque all anchors to 60 ft-lbs.
5. Remove track cover plate and weld top of track to leveler front frame angle and/or pit steel.

### WELD TRACK

If the installation being worked on is a “reinstallation” electrical connections must be disconnected prior to welding. Make sure to LOCKOUT/TAGOUT the power at the fused disconnect, then remove sensing switch connections from control box. Once all welding procedures have been completed, reconnect all wires.

1. Put DOK-Lok vehicle restraint track in place.
2. Plug weld all holes that are in contact with embedded mounting plate. All holes must be either plug welded or anchored.
3. Remove track cover plate and weld top of track to leveler front frame angle and/or pit steel.

### NOTES:

- **a.** Figure 2 – Never install DOK-LOK vehicle restraint directly onto concrete block or brick dock face.
- **b.** Figure 2 – When welding DOK-LOK vehicle restraint, disconnect power and ground leads to leveler.
- **c.** Figure 2 – Due to actual conditions, total mounting height may be different. Refer to Rite-Hite Application Guidelines for actual mounting height.
- **d.** If shims are required, shims must be the full length of the roller track mounting plate and base plate. See page 14.
- **e.** Minimum electrode must be 1/8", 7018 or better.

### CAUTION

DO NOT weld in enclosed areas without proper ventilation.

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**BEFORE WELDING:**

It is recommended that all power, ground and limit switch wires are disconnected from the sensor wires at the junction box. When welding has been completed, reverse the above process.
POSITION DOK-LOK ASSEMBLY INTO TRACK

1. Attach lifting chains to each side of DOK-LOK carriage. See figure 2.
2. Lift DOK-LOK and position above the DOK-LOK track.
3. Lower DOK-LOK into track until base plate is resting on the approach.
4. Center DOK-LOK in track.
5. If approach is inclined, shim as shown in figure 3.
6. If approach is declined, shim as shown in figure 3.

NOTES:

a. Base plate must be square to track.
b. Shims must be placed under each cylinder and/or spring tube. Shims should project 1/8" from outside edge of base plate and welded into place.
c. Cylinder should be loose. No bind cotter pins.

7. Anchor both sides of Base Plate to approach. See figure 4.
8. Remove guide tabs from Base Plate and discard. See figure 4.
HYDRAULIC INSTALLATION

1. Drill two holes through the dock wall for hydraulic hoses to pass through. Make sure holes are free of debris or sharp edges prior to passing hoses through wall. Conduit may be required in some applications to protect hoses.

2. Route hoses from DOK-LOK, through dock wall and connect to power unit. Make sure hoses are capped to keep out debris. See figures 5, 6 & 7.

   NOTE: For optional power unit mounting location. See page 17.

3. Secure hoses to dock face to prevent possible damage. Any extra hosing should be coiled and secured to the inside dock wall below the power unit.

4. Fill power unit reservoir using the supplied hydraulic fluid.

   NOTE: Remaining hydraulic fluid will be used during the initial startup procedures.
NOTE: DO NOT Overtighten Hose Fittings!

NOTE: Stand Alone Power Hoses Are Not Trimable

FIGURE 6 - HOSE ROUTING - STAND ALONE POWER UNIT

NOTE: DO NOT Overtighten Hose Fittings!

NOTE: Remote Power Hoses Are Trimable, See Page 18 For Trimming Instructions

FIGURE 7 - HOSE ROUTING - COMBINATION POWER UNIT
ELECTRICAL INSTALLATION

**DANGER**

When working with electrical or electronic controls, make sure that the power source has been locked out and tagged according to OSHA regulations and approved local electrical codes.

**IMPORTANT**

Grounding Electrode System must conform to the latest addition of the National Electrical Code (NFPA 70), where applicable, and/or local electrical codes. Grounding Electrode Conductors must be connected where indicated, and where required.

1. Complete electrical installation per schematics.

**NOTE:** Schematic’s are located inside control box.
CONTROL BOX AND CONDUIT INSTALLATION PROCEDURES.
1. Install the control box on a wall adjacent to the overhead door at approximately 48" above the floor level. See Figure 8.
2. Drill a hole for the power supply conduit (by others) in the bottom of the control box. All holes drilled through the control box must be through the bottom of the box.

IMPORTANT
- The control box and all wiring should be installed by a qualified electrician in accordance with all national and local electrical codes.
- If rigid conduit is installed, bonding must be maintained between conduit connections by using ground bushings and a jumper wire.

CONTROL BOX INSTALLATION GUIDELINES - TEMPERATURE CONTROLLED APPLICATIONS.
a. Conduit should be routed to enter through the bottom or side of the enclosure. A drip leg may be needed if the conduit could fill with water.

CAUTION
- When drilling holes in the box, DO NOT allow the drill to go too deeply into the box. Damage to the control systems may occur.
- DO NOT turn control box upside down to drill any access holes. Cover internal electrical components prior to drilling - this will prevent debris from contacting the internal electrical components.
- Remove all debris from box using a shop vacuum. NEVER use air to blow debris from the control box.

b. Seal the conduit in any location where the conduit transitions temperature zones that may produce condensation.

INITIAL START UP INSTALLATION PROCEDURES
1. Apply power to the control box and enter fill mode.
   a. Press and hold Diagnostic/Fill Mode Button on the inside of the control box until horn chirps. See figure 9.

   NOTE: You must wait one minute to exit Service Mode.

   2. After horn chirps, press the following buttons in order to enter fill mode. See figure 10.
      a. LOCK
      b. HORN OVERRIDE #2
      c. LOCK

   Press Buttons In The Following Order To Enter Fill Mode
   1. LOCK Button
   2. HORN OVERRIDE #2 Button
   3. LOCK Button

   FIGURE 9 - DIAGNOSTIC / FILL MODE BUTTON

   FIGURE 10 - ENTER FILL MODE
3. Controls are now in Fill Mode. Holding the LOCK or UNLOCK Button will run the pump up or down.

4. Cycle the DOK-LOK up and down to remove air from the system. Add remaining hydraulic fluid. Stop cycling once the support cylinders travel up and down the full length of slots without hesitation.

5. Press Diagnostic/Fill Mode Button to exit Fill Mode.

   **NOTE:** Must wait one minute to exit Fill Mode.

NOTES:

a. Concrete pad required on all approaches of materials other than concrete.
b. Pad must be a minimum 10 inches thick. May need to be deeper due to sub-soil climatic conditions or location codes.

FIGURE 11 - CONCRETE PAD ON APPROACH

NOTE: Track May Require A Cutout For Adjustment Access Hole On Some Kelley Levelers.

Do Not Trim Front Legs Of Track Angles

Trim Line For Adjustment Access Hole.

FIGURE 12 - TRIM ROLLER TRACK
SPECIAL APPLICATION INSTALLATION ITEMS

**Shim Length And Thickness**
To Be Determined Upon Installation

3/8" Shim Overhang Typ.

3/8" Shim Overhang Typ.

Drill Through Shim To Allow Anchor Bolt Mounting Typ.

3" Minimum Wide Typ.

**FIGURE 13 - STR42 BASE PLATE OVER A BRICK BRACKET**

Weld Shim To Base Plate 3/8"

Shim Thickness As Required

Shim Underside Of STR42 Base Plate In Both Places On Each Side.

Brick Bracket

Brick Bracket Base Plate
SPECIAL APPLICATION INSTALLATION ITEMS

Pit Steel
Front Frame Angle
Shim As Required Behind Track Angles.
1/2" THK Min. Bar Stock For Distances Greater Than 1" Use Channel

1/2" THK Min. Bar Stock For Distances Greater Than 1" Use Channel

Extend Lip Guide

Lip Guide

Front Frame Angle
Pit Steel

Remove Excess Material From Shaded Area As Shown.

FIGURE 14 - RECESSED LEVELER

Shim (See Back View Figure 13)
Thickness As Required Full Length Of Track Plate (3-4 Shims 3" wide x "A" x "B")
1/2" Maximum, If Greater Longer Anchors Are Required, If 1" or Greater DOK-LOK Bracket Required.

"A" Dim
Length From Top Of Pit Steel To Bottom Of Track Plate

"B" Dim
Thickness Of Shim

"C" Dim
If Dimension "C" Is Greater Than 3" inches Consult Factory.

Back View For Anchor Installation

Weld to Embedded Plate Prior To Plug Welding

Typ. Between Holes And Along Sides

1/4" Typ.

TYp. After Welding Shims To Imbedded Plate

Back View For Embedded Plate Installation

FIGURE 15 - PROTRUDING LEVELER

FIGURE 16 - BACK VIEW
INSTALLATION WITH PERMANENT WHEEL RISERS

1. Fabricate Support Spacer (supplied by others). See chart below and figure 17.

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Plate 1/4&quot; x 10&quot; x 64&quot;</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>C Channel _ x 64&quot;</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Plate 1/4&quot; x _ x 10&quot;</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Plate 1/4&quot; x 2&quot; x 10&quot; 2 Holes</td>
</tr>
</tbody>
</table>

2. Weld both sides of Base Plate Support Spacer to Base Plate and anchor to approach. See figure 18.

NOTES:

a. Use structural channel available in a size to match the height of Wheel Riser ± 1/4".

b. End plates should be sized to cap ends and the height will vary with height of the channels.

c. If site conditions warrant a spacer different than shown, consult the factory.
INSTALLATION WITH TRENCH DRAIN

1. If trench drain is below the base plate, embed PVC pipe in concrete for drainage. Concrete should extend a minimum of 6 inches to either side of the mounting plate.

   **NOTE:** If concrete can not be used, consult factory.
OPTIONAL POWER UNIT MOUNTING LOCATION

Optional Power Unit Mounting Location.
Ensure hoses are protected by channel or other means. Protection not to project more than 3 inches off dock face. Protection must extend down to 8 inches off of the approach. Must notch out a section for sensor wires to pass through to junction box. Consult factory for specific applications.

FIGURE 20 - OPTIONAL HYDRAULIC INSTALLATION
NOTE:
Trimmable hoses provided for combination power unit with RHV Leveler applications ONLY. Disregard these instructions for ALL other applications.

1. Cut hose to required length using a fine tooth hacksaw. Clean hose bore after cutting. See figure 21.

2. Liberally lubricate hose cover with heavy weight oil. Place socket in vise and turn hose into socket counterclockwise until it bottoms out. When assembling long lengths of hose, it may be necessary to put hose in vise just tight enough to prevent from turning, and screw socket onto the hose counterclockwise until it bottoms out. See figure 22.

3. Liberally lubricate nipple threads and inside of hose using heavy weight oil.

4. Screw nipple clockwise into socket and hose. Leave 1/32 to 1/16 inch clearance between nipple hex and socket. See figure 23.

5. Blow out hose assembly with clean compressed air before routing hose.

6. Route hoses between vehicle restraint and power unit.
RITE-HITE STANDARD WARRANTY

Rite-Hite warrants that its products will be free from defects in design, materials, and workmanship for a period of 365 days from the date of shipment. All claims for breach of this warranty must be made within 30 days after the defect is or can, with reasonable care, be detected and in no event no more than 30 days after the warranty has expired. In order to be entitled to the benefits of this warranty, the products must have been properly installed, maintained, and operated within their rated capacities and/or specified design parameters, and not otherwise abused. Periodic lubrication and adjustment is the sole responsibility of the owner. This warranty is Rite-Hite’s exclusive warranty. RITE-HITE EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. Non-standard warranties, if any, must be specified by Rite-Hite in writing.

In the event of any defects covered by this warranty, Rite-Hite will remedy such defects by repairing or replacing any defective equipment or parts, bearing all the costs for parts, labor, and transportation. This shall be the exclusive remedy for all claims whether based on contract, negligence, or strict liability.

LIMITATION OF LIABILITY

RITE-HITE SHALL NOT IN ANY EVENT BE LIABLE FOR ANY LOSS OF USE OF ANY EQUIPMENT OR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, WHETHER FOR BREACH OF WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.